

REMARKS

Claims 1-22 are pending in the present patent application. Claims 1-22 stand rejected. By this amendment, claims 1, 14, 16, and 22 have been amended. This application continues to include claims 1-22.

The Examiner has objected generally to the claims, based on MPEP 2111.02, and particularly, *Catalina Marketing International Inc. v. Coolsavings.com Inc.*, 62 USPQ2d 1781 (Fed. Cir. 2002). MPEP 2111.02 and *Catalina* pertain to determining whether or not the preamble of a claim is limiting. Specifically, the Examiner indicated that the form of the claims may be more properly presented by including a limitation drawn to an ink jet element in order to avoid the interpretation that the ink jet features of the preamble are simply associated with intended use. Applicants thank the Examiner for suggesting a limitation drawn to an ink jet element, but believe the scope of their claims to be appropriate in their current forms. Since the objection is apparently informal, and is without statutory basis, Applicants respectfully request the Examiner to withdraw the objection.

Claims 1-4, 6, 10-13, 16, 17, 19, 20, and 22 were rejected under 35 U.S.C. 102(b) as being anticipated by Okamoto, U.S. Patent No. 6,002, 846. Applicants respectfully request reconsideration of the rejection of claims 1-4, 6, 10-13, 16, 17, 19, 20, and 22 in view of the following.

Okamoto is directed to a method for protecting information in a printing apparatus by restoring valid information even if abnormality occurs in a part of information stored in a non-volatile memory (col. 1, lines 34-38). Okamoto discloses a non-volatile memory, such as an EEPROM 1708, for storing operation modes for defining the printer's operations, adjustment values and setting values for use of the printer IJRA in an optimal state, information required

for the printer's maintenance, and the like (col. 5, lines 40-48). The information is stored in a first area, AREA1, or a second area, AREA2, of EEPROM 1708 (col. 5, lines 63-65), and may be stored redundantly in both AREA1 and AREA2 (col. 6, lines 5-11). Okamoto also discloses a DRAM 1703 having work areas WORK1 and WORK2, which serve as temporary save areas for AREA1 and AREA2, respectively. (col. 7, lines 36-39).

When the printer IJRA is powered on, read control of the EEPROM data is performed, wherein the data from AREA1 and AREA2 is copied to WORK1 and WORK2, respectively, and for each, a sum (SUM1, SUM2) is compared to a reference value (TH1, TH2) in order to determine the integrity of the data (col. 7, lines 40 to col. 8, line 15). In order to update the data in EEPROM 1708, write operations are performed, wherein data is written from WORK1 to AREA1, if reference value NTH1 is different than previous reference value NTH2 (col. 8, lines 48-62, Fig. 5). The data from WORK1 is then copied to WORK2, and if $NTH2 \neq OTH2$, the contents of WORK2 is written to AREA2 (col. 8, line 64 to col. 9, line 8). However, the integrity of the data is not determined when it is written to EEPROM 1708, but rather, is determined when the data is read out of EEPROM 1708 (col. 9, lines 9-23).

Applicants believe that claims 1-4, 6, 10-13, 16, 17, 19, 20, and 22 patentably define Applicants' invention over Okamoto, for at least the reasons set forth below.

Claim 1 is directed to a method of storing usage information in an ink jet printer. Amended Claim 1, recites, in part, updating said usage information in at least one memory module, said updating including the steps of: storing low priority usage information in a first memory field; storing first high priority usage information in a second memory field; verifying said first high priority usage information has been written properly; and subsequently storing

second high priority usage information in a third memory field, said second high priority usage information being substantially identical to said first high priority usage information.

In contrast to claim 1, Okamoto simply does not disclose, teach, or suggest the steps of verifying the first high priority usage information has been written properly; and subsequently storing second high priority usage information in a third memory field, as recited in claim 1. For example, in step S200, data is copied from EEPROM 1708 to both WORK1 and WORK2 of DRAM 1703, without verifying that the information has been written properly before copying to WORK2 (col. 7, lines 44-47, Fig. 4). Similarly, with respect to Fig. 5, Okamoto discloses writing information to AREA1 and then writing information to AREA 2 of EEPROM 1708, without verifying the first high priority usage information has been written properly before writing the information to AREA2. The integrity of the data is not determined when it is written to EEPROM 1708, but rather, is determined when the data is read out of EEPROM 1708 (col. 9, lines 9-23).

Also, in contrast to updating usage information, including the step of storing second high priority usage information in a third memory field, as recited in claim 1, the Okamoto step of copying information to the asserted third memory field, WORK2, is merely a procedure to initially provide information stored in EEPROM 1708 to a DRAM 1703 temporary save area (col. 7, lines 36-39), that was heretofore empty of information. For example, although Okamoto discloses updating the first and second areas of EEPROM 1708 (col. 8, lines 61-62, and col. 9, lines 6-7, respectively), the information is copied in step S200 to WORK2 in DRAM 1703 when the printer IJRA is powered on (col. 7, lines 44-47). It is known in the art that DRAM memory does not retain information when powered off, hence, when the printer is powered on in step S200, DRAM 1703 is empty of information.

Accordingly, rather than “updating” usage information in DRAM 1703, for example, bringing “up to date” an information that is already stored in DRAM 1703, step S200 merely provides original information to DRAM 1703. It is known in the art that the initial provision of data to a memory does not disclose, teach or suggest “updating” that memory. Okamoto does not disclose, teach, or suggest otherwise.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that the cited reference, Okamoto, does not disclose, teach, or suggest the subject matter of claim 1. Support for the amendment to claim 1 can be found in Applicants’ specification at page 5, lines 28-33, and Figs. 3A and 3B. Accordingly, claim 1, as amended, is believed allowable.

Claims 2-4, 6, and 10-13 are believed allowable due to their dependence, directly or indirectly, on otherwise allowable base claim 1, as amended. In addition, claims 2-4, 6, and 10-13 further and patentably define the invention over Okamoto.

For example, Claim 3 is directed to the method of claim 2, wherein if power is lost to the printer while writing to one of said second memory field and said third memory field, said information in the other of said second memory field and said third memory field is not corrupted. In contrast to claim 3, Okamoto discloses that in order to update the data in EEPROM 1708, write operations are performed, wherein data is written from WORK1 to AREA1, if reference value NTH1 is different than previous reference value NTH2 (col. 8, lines 48-62, Fig. 5). The data from WORK1 is then copied to WORK2, and if NTH2 \neq OTH2, the contents of WORK2 is written to AREA2 (col. 8, line 64 to col. 9, line 8). Thus, if power is lost while writing to the asserted third memory field, WORK2, which is a volatile memory, (DRAM), the data written to WORK2 will be corrupted. This corrupted data is then

copied to the asserted second memory field, AREA2. Thus, the data in both the asserted third memory field and the asserted second memory field is corrupted. Accordingly, claim 3 is believed allowable in its own right.

Claim 16 is directed to an ink jet printer, comprising a non-volatile memory module including: a first field containing low priority usage information; a second field containing first high priority usage information; and a third field containing second high priority usage information substantially identical to said first high priority usage information. Applicants respectfully submit that Okamoto does not disclose, teach, or suggest the subject matter of claim 16, as amended.

In contrast to claim 16, the asserted Okamoto fields are located in multiple memory modules, one of which is a volatile memory. For example, Okamoto discloses that information is stored in an EEPROM 1708 having AREA1 and AREA2 (col. 5, lines 63-65), i.e., the asserted first and second fields, and a DRAM 1703 having work areas WORK1 and WORK2 (col. 7, lines 36-39), wherein WORK2 is the asserted third field.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Okamoto does not disclose, teach, or suggest the subject matter of claim 16.

Claims 17, 19, and 20 are believed allowable due to their dependence, directly or indirectly, on otherwise allowable base claim 16. In addition, claims 17, 19, and 20 further and patentably define Applicants' invention over Okamoto.

For example, claim 17 is directed to the ink jet printer of claim 16, wherein said memory module includes a fourth field containing read-only information. In contrast to claim 17, Okamoto simply does not disclose, teach, or suggest that EEPROM 1708 includes a fourth field containing read-only information. Although the Okamoto ROM 1702 may contain read-

only information, ROM 1702 is not a fourth field of the “ non-volatile memory module” of claim 16, incorporated by reference into claim 17.

Claim 22, as amended, is directed to method of updating usage information in an ink jet printer, and recites, in part, storing first usage information in a first memory field; verifying said first usage information has been written properly; and subsequently storing second usage information in a second memory field, said second usage information being substantially identical to said first usage information.

For substantially the same reasons as set forth above with respect to claim 1, Applicants respectfully submit that Okamoto does not disclose, teach, or suggest the subject matter of claim 22. Support for the amendment to claim 22 can be found in Applicants’ specification at page 5, lines 28-33, and Figs. 3A and 3B. Accordingly, claim 22, as amended, is believed allowable.

Accordingly, for at least the reasons set forth above, Applicants believe that claims 1-4, 6, 10-13, 16, 17, 19, 20, and 22 are in condition for allowance in their present form, and thus respectfully request that the rejection of claims 1-4, 6, 10-13, 16, 17, 19, 20, and 22 under 35 U.S.C. 102(b) be withdrawn.

Claim 5 was rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto in view of Harrington III, et al., U.S. Patent No. 5,627,572. Applicants respectfully request reconsideration of the rejection of claim 5 in view of the following.

Harrington III, et al. is directed to a control system for maintaining the printhead of an ink-jet printer, the system being easily programmed and reprogrammed to accommodate newly developed printheads (col. 1, lines 14-17). For example, the frequency of wiping or number of wipes may be different for different printhead designs (col. 1, lines 23-35).

Accordingly, Harrington III, et al. discloses an E²PROM which stores descriptor information for specifying the maintenance programs for various printhead types (col. 5, line 39 to col. 7, line 17), including defining the number of wipes to be performed under various conditions, for example, as defined by the parameters POR PASS COUNT (col. 6, lines 24-28) and IDLE PASS COUNT (col. 6, lines 38-39).

Applicants believe that claim 5 patentably defines Applicants' invention over the cited references, Okamoto in view of Harrington III, et al., taken alone or in combination, for at least the reasons set forth below.

Claim 5 is directed to method of claim 1, wherein said low priority usage information includes at least one of a number of wet-wipes performed and a last ink-float read. The Examiner asserts that Okamoto discloses storing recovery information as low priority usage information at column 7, lines 10-13, but acknowledges that Okamoto does not teach that the recovery information includes the number of wet-wipes performed.

In contrast to low priority usage information, as recited in claim 5, for example, information pertaining to past usage by the printer, such as a number of wet-wipes performed and a last ink-float read by the printer, the Okamoto recovery information pertains to information which can be set again by the user (col. 7, lines 4-5), such as on the basis of print results upon test printing by the user (col. 7, lines 21-22), which even if lost, can thus be recovered (col. 7, lines 22-25). However, low priority usage information, such as a number of wet-wipes performed or a last ink-float read, is, inherently, data that cannot be so recovered.

The Examiner also asserts that Harrington III, et al. discloses storing a number and time of wipes as recovery information. However, in contrast to claim 5, Harrington III, et al. discloses an E²PROM which stores descriptor information for specifying the maintenance

programs for various printhead types (col. 5, line 39 to col. 7, line 17), including defining the number of wipes to be performed under various conditions, for example, as defined by the parameters POR PASS COUNT (col. 6, lines 24-28) and IDLE PASS COUNT (col. 6, lines 38-39). Applicants respectfully submit that it is clear that specifying maintenance programs, including defining the number of wipes does not disclose, teach, or suggest recording usage information, let alone low priority usage information including at least one of a number of wet-wipes performed and a last ink-float read, as recited in claim 5.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Okamoto in view of Harrington III, et al., taken alone or in combination, do not disclose, teach, or suggest the subject matter of claim 5. Claim 5 is thus believed allowable in its own right. In addition, claim 5 is believed allowable due to its dependence on otherwise allowable base claim 1. Accordingly, Applicants respectfully request that the rejection of claim 5 under 35 U.S.C. 103(a) be withdrawn.

Claims 7, 9, and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto in view of Digital Design 2nd ed. by Mano, at pages 180-186 and 299-302. Applicants respectfully request reconsideration of the rejection of claims 7, 9, and 18 in view of the following.

Mano is directed to digital design (cover page). Mano discloses that a read-only memory (ROM) may be programmed by the ROM manufacturer based on a truth table provided by the customer (page 186). Mano also discloses conventional error detection and correction based on the Hamming code use of parity bits (pages 299-302).

Claims 7, 9, and 18 are believed allowable due the their dependence on their respective base claims and/or intervening claims. In addition, Applicants believe that claims

7, 9, and 18 patentably define Applicants' invention over the cited references, Okamoto in view of Mano, taken alone or in combination, for at least the reasons set forth below.

Claim 7 is directed to the method of claim 6, wherein said read-only information is determined at a time of manufacture of the printer. The Examiner acknowledges that Okamoto fails to teach the subject matter of claim 7. In contrast to read-only information determined at a time of manufacture of the printer, Mano discloses merely that a read-only memory (ROM) may be programmed by the ROM manufacturer based on a truth table filled out by a customer (page 186). Applicants respectfully submit that programming a ROM at the manufacturer using a truth table provided by a customer does not disclose, teach, or suggest wherein the read-only information is determined at a time of manufacture of the printer, as recited in claim 7. Accordingly, claim 7 is believed allowable in its own right.

Claim 9 is directed to the method of claim 6, comprising the further step of storing at least one checksum byte associated with at said fourth memory field. The Examiner acknowledges that Okamoto fails to teach the subject matter of claim 9. In contrast to a checksum byte, as recited in claim 9, Mano discloses conventional error detection and correction based on the Hamming code use of parity bits (pages 299-302). Applicants respectfully submit that it is known in the art that the Hamming code's use of parity bits for error detection does not disclose, teach, or suggest a checksum byte, as recited in claim 9.

Accordingly, claim 9 is believed allowable in its own right.

Claim 18 is directed to the ink jet printer of claim 17, wherein said memory module includes at least one checksum byte associated with said fourth field. For substantially the same reasons as set forth above with respect to claim 9, claim 18 is believed allowable in its own right.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Okamoto in view of Mano, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claims 7, 9, and 18. Accordingly, Applicants respectfully request that the rejection of claims 7, 9, and 18 under 35 U.S.C. 103(a) be withdrawn.

Claims 7 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto in view of Cook, WO 99/65695. Applicants respectfully request reconsideration of the rejection of claims 7 and 8 in view of the following.

Cook is directed to controlling an ink jet printer based on compatibility between a primary ink supply in a print cartridge and a secondary, off-carrier ink reservoir (page 1, lines 5-7). Cook discloses programming ink characteristics into a printhead cartridge memory unit during manufacturing of the printhead cartridge (page 6, lines 19-25).

Claims 7 and 8 are believed allowable due to their dependence on otherwise allowable base claim 1 and/or intervening claim 6. In addition, Applicants believe that claims 7 and 8 patentably define Applicants' invention over the cited references, Okamoto in view of Cook, taken alone or in combination, for at least the reasons set forth below.

Claim 7 is directed to the method of claim 6, wherein said read-only information is determined at a time of manufacture of the printer. The Examiner acknowledges that Okamoto fails to teach a ROM with information determined at a time of manufacture, but asserts claim 7 would be obvious with respect to Okamoto in view of Cook, based on a motivation to solve the problem of ink incompatibility. However, the Okamoto printer does not employ a primary ink supply in a print cartridge and a secondary, off-carrier ink reservoir, as disclosed in Cook (page 1, lines 5-7), in which an ink incompatibility issue might arise.

Thus, there would be no motivation to modify the Okamoto apparatus to address ink incompatibility.

Accordingly, the subject matter of claim 7 would not have been obvious with respect to Okamoto in view of Cook. Claim 7 is thus believed allowable in its own right.

Claim 8 is directed to the method of claim 6, wherein said read-only information includes at least one of starting ink, ink drop volume, and fire energy information. The Examiner acknowledges that Okamoto fails to teach the subject matter of claim 8, but asserts claim 8 would be obvious with respect to Okamoto in view of Cook, based on the motivation to solve the problem of ink incompatibility. For substantially the same reasons as set forth above with respect to claim 7, Applicants respectfully submit that claim 8 is allowable in its present form.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Okamoto in view of Cook does not disclose, teach, or suggest the subject matter of claims 7 and 8. Accordingly, Applicants respectfully request that the rejection of claims 7 and 8 under 35 U.S.C. 103(a) be withdrawn.

Claims 14, 15, and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto in view of Eby, et al., U.S. Patent No. 5,146,431. Applicants respectfully request reconsideration of the rejection of claims 14, 15, and 21 in view of the following.

Eby, et al. is directed to page recall of data in an NVDRAM memory device (col. 1, lines 9-11). Eby, et al. discloses, as prior art, that NVDRAM memory include a DRAM cell and an EEPROM cell, and that data in the DRAM can be stored in the EEPROM during power down (col. 1, lines 11-40).

Claims 14, 15, and 21 are believed allowable due to their dependence on their respective base claims and/or intervening claims. In addition, Applicants believe that claims 14, 15, and 21 patentably define Applicants' invention over the cited references, Okamoto in view of Eby, et al., taken alone or in combination, for at least the reasons set forth below.

Claim 14 is directed to the method of claim 1. Claim 14, as amended, recites, wherein said at least one memory module is a non-volatile memory module containing said first memory field, said second memory field and said third memory field. The Examiner acknowledges that Okamoto fails to teach that the first, second, and third memory fields are contained in a single non-volatile memory module, but asserts that it would have been obvious to use the Eby, et al. NVDRAM to achieve the functions of the DRAM and EEPROM disclosed by Okamoto.

However, such a combination would be undesirable, since it would necessarily increase the size of the Okamoto EEPROM in order to accommodate the asserted redundant information stored in the WORK2 area of DRAM 1703, that is to be stored in the EEPROM of the NVDRAM during power down, as taught by Eby, et al. (col. 1, lines 11-40). For example, Okamoto teaches that "the EEPROM capacity must be minimized to reduce the apparatus cost because the EEPROM is much more expensive than a normal memory device (e.g., a DRAM)." (Col. 6, lines 20-23).

In addition, since Okamoto already includes an EEPROM, there would be no need to modify the Okamoto apparatus to use an NVDRAM device in order to yield first, second, and third memory fields contained in a single non-volatile memory module.

Accordingly, it would not have been obvious to combine Okamoto with the NVDRAM device of Eby, et al. in order to yield the subject matter of claim 14. Claim 14 is thus believed allowable in its own right.

Claim 15 is directed to the method of claim 14, comprising the further step of authenticating said at least one non-volatile memory module upon power-up of the printer. The authenticating step is “required in order to unlock and read the memory module contents” (please reference Applicant’s specification at page 4, lines 30-32, and Fig. 2A). In contrast, Okamoto discloses powering on printer IJRA, followed directly by reading the data from EEPROM 1708 (col. 7, lines 44-47, Fig. 4), as opposed authenticating EEPROM 1708 upon power-up of printer IJRA, and then reading the data from EEPROM 1708.

In addition, Eby, et al. simply does not disclose, teach, or suggest the subject matter of claim 15. Accordingly, claim 15 is believed allowable in its own right.

Claim 21 is directed to the ink jet printer of claim 16, wherein said third field defines a means of preventing said first high priority usage information from being lost if power to the printer is interrupted while said second field is being written to. The Examiner concedes that Okamoto fails to disclose that the third memory area is non-volatile, but asserts that it would be obvious to use the Eby, et al. NVDRAM to achieve the functions of the DRAM and EEPROM disclosed by Okamoto. Applicants respectfully submit that it would not have been obvious to so combine Okamoto with Eby, et al. for substantially the same reasons as set forth above with respect to claim 14.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Okamoto in view of Eby, et al. does not disclose, teach, or suggest the subject matter of

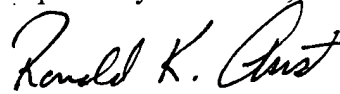
claims 14, 15, and 21. Accordingly, Applicants respectfully request that the rejection of claims 14, 15, and 21 under 35 U.S.C. 103(a) be withdrawn.

For the foregoing reasons, Applicants submit that the pending claims are definite and do particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Moreover, Applicants submit that no combination of the cited references teaches, discloses or suggests the subject matter of the appended claims. The claims are therefore in condition for allowance, and Applicants respectfully request withdrawal of all rejections and allowance of the claims.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor, and authorize that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

Should any question concerning any of the foregoing arise, the Examiner is invited to telephone the undersigned at (317) 894-0801.

Respectfully submitted,



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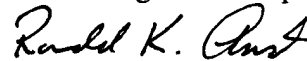
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